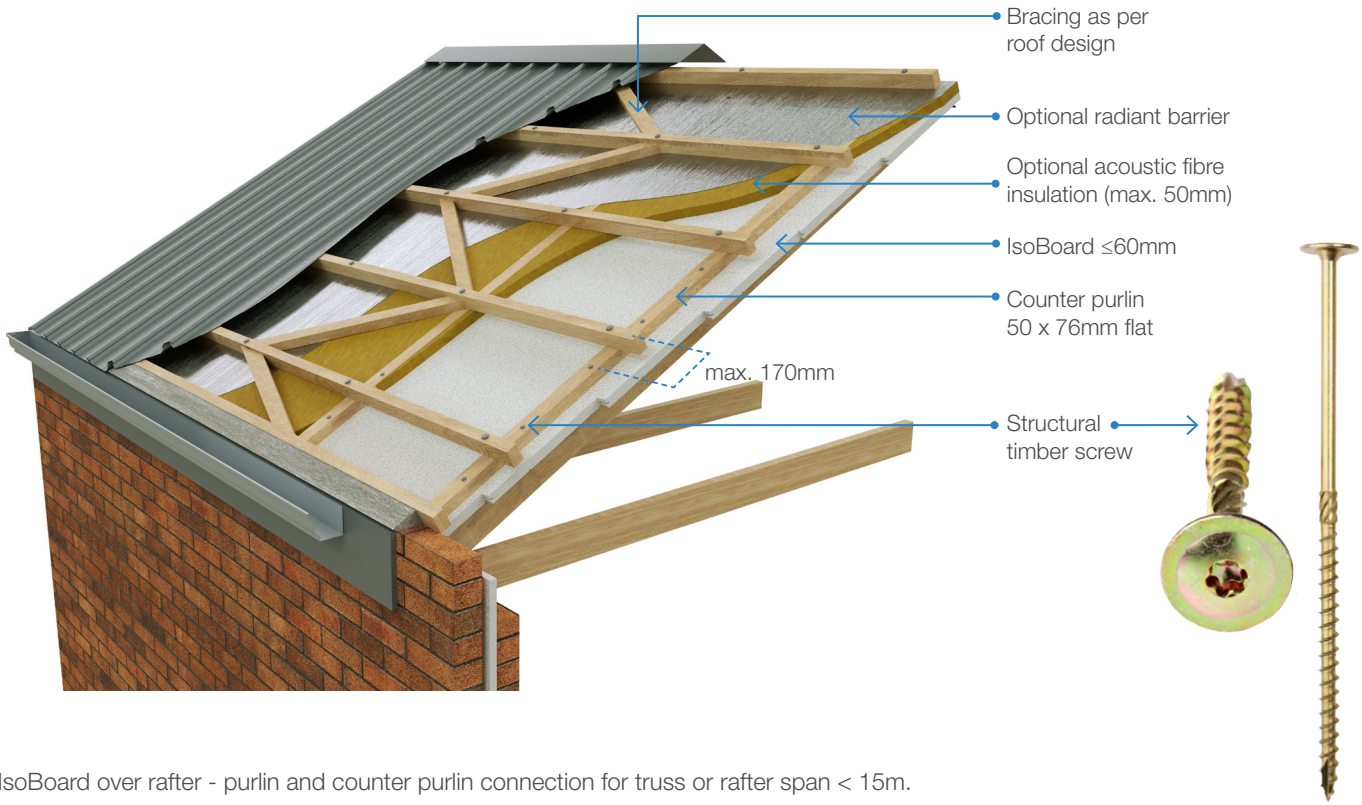
ISOBOARD®

ZERO ODP

Premier Thermal Insulation for • Roofs • Ceilings • Floors • Walls

Over Truss and Rafter Thermally Insulated Ceiling

IsoBoard connection detail for sheeted roofs



IsoBoard over rafter - purlin and counter purlin connection for truss or rafter span < 15m.

Synopsis

Install a 76 x 50mm on flat counter-purlin above the IsoBoard, screw-fixed through the IsoBoard thermal insulation into each rafter or truss top-chord, continuous with the length of each rafter or top-chord.

Purlins or tile battens are fixed per industry standard to the counter-purlin, for roof sheeted or concrete tile roof systems, respectively.

Suggested bill of quantity specification

IsoBoard high density 32-36kg/m^3 rigid extruded polystyrene 100% closed cell insulation board of __mm thickness and 600 mm wide, with tongue and groove joints, screw-fixed through 76 x 50mm on flat counter-purlin, over timber rafters/trusses at approximately __mm centres, with 5mm gap between boards where butt-joined on top of rafter/trusses.

ISOBOARD OVER RAFTER WITH WASHERHEAD STRUCTURAL TIMBER SCREWS			
	Counter purlin connection through insulation board into rafter	Purlin connection into counter purlin	
	Screw Length (mm)	Purlin on Edge	Purlin on Flat
30	6 x 160mm	6 x 120mm	6 x 100mm
40	6 x 160mm	6 x 120mm	6 x 100mm
50	6 x 180mm	6 x 120mm	6 x 100mm
60	6 x 180mm	6 x 120mm	6 x 100mm

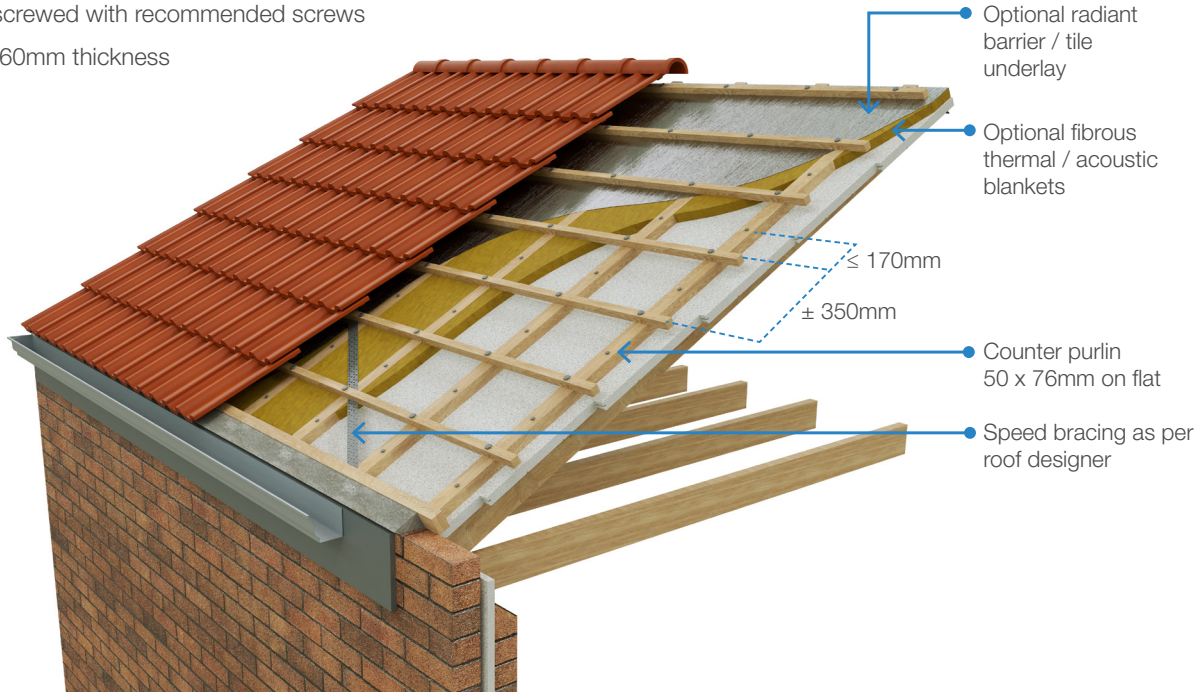
Trusses and Purlin Spacing / Emperical Design for SA Pine		
Maximum Truss Centres (mm)	Maximum Purlin Centres (mm)	Purlin Size
1500	1000	50 x 76 on edge
1200	1000	50 x 76 on flat for pitch > 15° or 50 x 76 on edge
1200	900	50 x 76 on flat for pitch > 15° or 50 x 76 on edge

Truss vertical and in-plane bracing shall comply with SANS 10243.

NB: Only 6mm washerhead structural timber screws may be used with an European Technical Assessment (ETA) or Agrement South Africa approval.

IsoBoard connection detail for cement tile roofs

- Industry standard tile batten connection
- Counter purlin screwed with recommended screws
- IsoBoard up to 60mm thickness



Truss vertical and in plane bracing shall comply with SANS 10243. For tiled trussed roof system an in-plane braced bay shall connect at least three adjacent trusses with metal brace.

ISOBOARD OVER RAFTER WITH WASHERHEAD STRUCTURAL TIMBER SCREWS		
IsoBoard Thickness (mm)	Counter batten connection through insulation board into rafter	Batten connection into counter batten
	Screw Length (mm)	
30	6 x 140mm	65 x 3.15mm wire nail
40	6 x 160mm	
50	6 x 180mm	
60	6 x 180mm	

Based on "The Behaviour of Connections Using Counter Purlins in Isoboard Roof Applications" 18 April 2018 Final rev1 Compiled by : J A Wium and P. Okonkwo / Stellenbosch University / Institute for Integrated Technology

Maximum Truss or Rafter Spacing		
IsoBoard Thickness (mm)	Maximum Centres (mm)	Notes:
30	1200	Do not leave IsoBoard exposed to the sun during installation. Exposure to the sun might cause the board to excessively deflect.
40	1300	
50	1400	

Installed surface finish alternatives

- Bevelled edge panels, with a single groove every 600mm, at the board joint.
- Isopine 100, resembles knotty pine, with grooves at 100mm centres.
- Isopine 200, resembles planks with grooves at 200mm centres.
- IsoBoard should always be painted for residential applications, with two coats water-based paint.

HOW TO IDENTIFY ISOBOARD

IsoBoard can be identified by the logo and manufacturing details on the tongue of the board.

Installing IsoBoard XPS as over-rafter or -truss thermal insulation

Site handling instructions

1. Handle and install with care to prevent damage to board edges.
2. Store boards flat within original packaging until required.
3. Protect from adverse weather conditions and direct sunlight for the storage period.
4. IsoBoard is easily cut to length using a sharp blade or hacksaw.
5. In potentially dusty conditions during or after construction, wipe boards with a weak softened water solution, immediately prior to installation. This removes possible static charges present on the board surface, which may attract dirt and dust.
6. IsoBoard can be painted prior or subsequent to installation.

Additional considerations

1. We recommend minimum 50mm nominal width for the rafter or top-chord. We have successfully tested 38mm width as alternative, however, a higher degree of care is required by erectors regarding the centring of fixing screws.
2. We recommend a 76 x 50mm on flat counter-purlin for all applications of this type. We have successfully tested 76 x 38mm and 50 x 38mm on flat counter-purlins in full scale roof tests. However, laboratory testing for stiffness and durability tested only 76 x 50mm samples, as it is not possible to use purlin clips to secure the purlin and counter-purlin with 76 x 38 or 50 x 38mm alternatives.
3. When splicing counter-purlins during installation, we recommend a screw fixed within 150mm of either side of the butt join. However, If the roof design relies on the additional stiffness imparted by the counter-purlin, the design should stipulate that counter-purlins should be continuous for the length of the rafter or top-chord, and not be spliced.
4. Acoustic blanket or fibre insulation can be added above the IsoBoard in the void formed by the counter purlins and purlins.
5. We tested a maximum of 60mm thickness IsoBoard for use in this application, as it is unlikely that thicker IsoBoard thermal insulation will be required in the South African climate. Flexible bulk insulators can make up increase the roof thermal resistance, and provide acoustic damping for sheeted roofs.
6. This application and installation recommendations follow extensive testing and development for the South African roofing market. However, the professional team must evaluate the solution as appropriate for each project.

	R-Value	U-Value
Thickness (mm)	**Thermal Resistance (m.°K/W)**	**Thermal Transmittance (W/m2°K)**
25	0,953	1,049
30	1,143	0,875
40	1,524	0,656
50	1,905	0,525
60	2,287	0,437
70	2,668	0,375
80	3,049	0,328

Thermal Conductivity tested to SANS 8301	
IsoBoard thermal conductivity k value	0.02624 W/m.K - Test result available

Fire Classification: 10400 Part T and SANS 428	
B/B1/2 horizontal and vertical / with or without Sprinklers	
Fire tested insulation combinations:	50mm IsoBoard & 135mm Knauf Bulk Insulation FTC 18/256 2018 B/B1/2/H only (USP)
	40mm IsoBoard & 50mm Isotherm B polyester blanket FTC 18/027 B/B1 Residential
	40mm IsoBoard & 70mm Starlite A blanket FTC 16/177 B/B1 Residential

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